

## CLAIMS

1. A visual query system, comprising:  
query criteria for display as shapes that have a semantic relationship which represents logical associations between the query criteria;  
a query statement generator configured to:  
determine Boolean associations corresponding to the semantic relationship of the shapes;  
generate a query statement for each shape of query criteria;  
combine the query statements according to the Boolean associations;  
and  
generate a query result of the combined query statements.
2. A visual query system as recited in claim 1, wherein the query statement generator is further configured to:  
generate the query statements as a SQL query statement for each shape of query criteria; and  
generate the query result from a SQL query of the combined SQL query statements.
3. A visual query system as recited in claim 1, wherein a first shape of query criteria is displayed proximate a second shape of query criteria such that the first shape has an AND Boolean association with the second shape.

4. A visual query system as recited in claim 1, wherein a first shape of query criteria is displayed proximate a second shape of query criteria within a visual query definition such that the first shape has an AND Boolean association with the second shape within the visual query definition.

5. A visual query system as recited in claim 1, wherein a first shape of query criteria is displayed proximate a second shape of query criteria within a visual query definition that is bordered to define a Boolean association between the first shape and the second shape within the visual query definition.

6. A visual query system as recited in claim 1, wherein a first set of query criteria are displayed within a first visual query definition, and wherein a second set of query criteria are displayed within a second visual query definition, the first set of query criteria including the second set of query criteria such that the second visual query definition is displayed within the first visual query definition.

7. A visual query system as recited in claim 1, wherein:

a first set of query criteria are displayed within a first visual query definition;

a second set of query criteria are displayed within a second visual query definition, the first set of query criteria including the second set of query criteria such that the second visual query definition is displayed within the first visual query definition; and

the query statement generator is further configured to generate a first query result of the first set of query criteria and generate a second query result of the second set of query criteria such that the first query result and the second query result can be displayed as multiple query results.

8. A visual query system as recited in claim 1, wherein an additional shape of query criteria is configured for display with the query criteria, and wherein the query statement generator is further configured to:

determine an additional Boolean association corresponding to the semantic relationship of the additional shape of query criteria;

generate an additional query statement for the additional shape of query criteria;

combine the query statements and the additional query statement according to the additional Boolean association; and

update the query result of the combined query statements and the additional query statement.

9. A visual query system as recited in claim 1, further comprising data tables that maintain data criteria, and wherein the query criteria is displayed in user-identifiable terms as metadata that correlates to the data criteria maintained in the data tables.

10. A visual query system as recited in claim 1, further comprising a user interface configured to:

display criteria selections that include the query criteria within a criteria selection display on the user interface;

display the shapes of query criteria within a visual query definition on the user interface; and

display the query result within the visual query definition.

11. A visual query system as recited in claim 1, further comprising an audio output device configured to generate an audible indication corresponding to at least one of an update and a display of the query result.

12. A visual query system, comprising:

a visual query definition configured to associate query criteria in a display such that proximate positions of the query criteria define query criteria associations;

a query statement generator configured to:

determine a query statement association for each display relationship of the query criteria;

generate a query statement for each of the query criteria;

combine the query statements according to the query statement associations; and

generate a query result of the combined query statements for display in the visual query definition.

13. A visual query system as recited in claim 12, wherein the visual query definition is further configured to associate the query criteria in the display without logic operators connected between the query criteria.

14. A visual query system as recited in claim 12, wherein the query statement generator is further configured to determine the query statement associations as a Boolean association for each display relationship of the query criteria.

15. A visual query system as recited in claim 12, wherein the query statement generator is further configured to generate the query statements as a SQL query statement for each query criteria.

16. A visual query system as recited in claim 12, wherein a first query criteria is displayed proximate a second query criteria within the visual query definition such that the first query criteria has an AND query statement association with the second query criteria.

17. A visual query system as recited in claim 12, wherein a first query criteria is displayed proximate a second query criteria within the visual query definition such that the first query criteria has an OR query statement association with the second query criteria.

18. A visual query system as recited in claim 12, wherein the visual query definition is bordered to define a query statement association between a first query criteria displayed proximate a second query criteria within the visual query definition.

19. A visual query system as recited in claim 12, further comprising a second visual query definition configured to associate additional query criteria in the display, wherein:

the visual query definition includes the second visual query definition such that the second visual query definition is displayed within the visual query definition; and

the query statement generator is further configured to generate a second query result for the second visual query definition such that the query result and the second query result can be displayed as multiple query results.

20. A visual query system as recited in claim 12, wherein the visual query definition is further configured to associate additional query criteria in the display, and wherein the query statement generator is further configured to:

determine an additional query statement association for a display relationship of the additional query criteria;

generate an additional query statement for the additional query criteria;

combine the query statements and the additional query statement according to the additional query statement association; and

update the query result of the combined query statements and the additional query statements.

21. A visual query system as recited in claim 12, further comprising a user interface configured to:

display criteria selections that include the query criteria within a criteria selection display on the user interface;

display the query criteria within the visual query definition on the user interface; and

display the query result within the visual query definition on the user interface.

22. A visual query system as recited in claim 12, further comprising data tables that maintain data criteria, and wherein the query criteria is displayed in user-identifiable terms as metadata that correlates to the data criteria maintained in the data tables.

23. A visual query system as recited in claim 12, further comprising an audio output device configured to generate an audible indication corresponding to at least one of an update and a display of the query result.



24. A user interface, comprising:  
a criteria selection display of query criteria;  
a visual query definition displayed to associate the query criteria each represented by a shape displayed within the visual query definition; and  
a query result displayed within the visual query definition, the query result generated from a combination of one or more query statements that each represent a shape of query criteria and the association of the query criteria.

25. A user interface as recited in claim 24, wherein the visual query definition is further displayed to associate the query criteria based on proximate positions of the query criteria in the visual query definition and without logic operators connected between the query criteria.

26. A user interface as recited in claim 24, wherein the query criteria are drag-and-drop query criteria from the criteria selection display to the visual query definition.

27. A user interface as recited in claim 24, wherein the visual query definition can be copied to create a second visual query definition for display on the user interface, and wherein the second visual query definition is redefined in an event that the visual query definition is redefined.

28. A user interface as recited in claim 24, wherein an attribute of the visual query definition defines a Boolean association of the query criteria represented by the shapes displayed within the visual query definition.

29. A user interface as recited in claim 24, wherein a color of the visual query definition defines a Boolean association of the query criteria represented by the shapes displayed within the visual query definition.

30. A user interface as recited in claim 24, wherein a border of the visual query definition defines a Boolean association of the query criteria represented by the shapes displayed within the visual query definition.

31. A user interface as recited in claim 24, wherein the one or more query statements are SQL query statements, and wherein the query result is generated from the combination of the one or more SQL query statements.

32. A user interface as recited in claim 24, wherein a first shape of query criteria is displayed proximate a second shape of query criteria within the visual query definition such that the first shape has an AND query statement association with the second shape.

33. A user interface as recited in claim 24, wherein a first shape of query criteria is displayed proximate a second shape of query criteria within the visual query definition such that the first shape has an OR query statement association with the second shape.

34. A user interface as recited in claim 24, further comprising additional query criteria not associated with the visual query definition and displayed to indicate the non-association.

35. A method, comprising:  
displaying query criteria as shapes on a user interface;  
determining a query statement association for each display relationship of the shapes of query criteria;  
generating a query statement for each shape of query criteria; and  
combining the query statements according to the query statement associations.

36. A method as recited in claim 35, wherein determining the query statement associations includes determining a Boolean association corresponding to each display relationship of the shapes of query criteria.

37. A method as recited in claim 35, wherein generating the query statements includes generating a SQL query statement for each shape of query criteria.

38. A method as recited in claim 35, further comprising displaying criteria selections that include the query criteria in a criteria selection display on the user interface.

39. A method as recited in claim 35, further comprising generating a query result of the combined query statements.

40. A method as recited in claim 35, further comprising displaying a query result of the combined query statements within a visual query definition that includes the shapes of query criteria.

41. A method as recited in claim 35, wherein displaying the query criteria as shapes includes displaying a first shape of query criteria proximate a second shape of query criteria within a visual query definition such that the first shape has a Boolean association with the second shape.

42. A method as recited in claim 35, wherein displaying the query criteria as shapes includes displaying a first shape of query criteria proximate a second shape of query criteria within a visual query definition such that the first shape has an AND Boolean association with the second shape.

43. A method as recited in claim 35, wherein displaying the query criteria as shapes includes displaying a first shape of query criteria proximate a second shape of query criteria within a visual query definition that is bordered to define an OR Boolean association between the first shape and the second shape.

44. A method as recited in claim 35, wherein displaying the query criteria includes displaying the query criteria in user-identifiable terms as metadata that correlates to data criteria maintained in data tables.

45. A method as recited in claim 35, wherein displaying the query criteria includes displaying a first set of query criteria within a first visual query definition, and displaying a second set of query criteria within a second visual query definition such that the first set of query criteria includes the second set of query criteria.

46. A method as recited in claim 35, further comprising:  
adding additional query criteria as a shape on the user interface;  
determining an additional query statement association for a display relationship of the additional shape of query criteria;  
generating an additional query statement corresponding to the additional shape of query criteria;  
combining the query statements and the additional query statement according to the additional query statement association; and  
updating a query result displayed on the user interface to include the additional query criteria.

47. A method as recited in claim 46, wherein adding the additional query criteria includes dragging-and-dropping the additional query criteria on the user interface.

48. A method as recited in claim 35, further comprising generating an audible indication corresponding to at least one of a display of a query result on the user interface and an update of a query result displayed on the user interface.

49. One or more computer readable media comprising computer executable instructions that, when executed, direct a computing device to perform the method of claim 35.

50. One or more computer readable media comprising computer executable instructions that, when executed, direct a computing device to:

display a visual query definition to associate query criteria as shapes having display relationships;

determine a query statement association for each shape of query criteria according to the display relationships;

generate a query statement for each shape of query criteria;

combine the query statements according to the query statement associations; and

generate a query result of the combined query statements for display in the visual query definition.

51. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to determine the query statement association for each shape of query criteria as a Boolean association.

52. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to generate the query statement for each shape of query criteria as a SQL query statement.

53. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to display criteria selections that can be added to the visual query definition.

54. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to display a first shape of query criteria proximate a second shape of query criteria within the visual query definition such that the first shape has a Boolean association with the second shape.

55. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to display a first shape of query criteria proximate a second shape of query criteria within the visual query definition such that the first shape has an AND Boolean association with the second shape.

56. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to display a first shape of query criteria proximate a second shape of query criteria within the visual query definition that is bordered to define an OR Boolean association between the first shape and the second shape.

57. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to display a first set of query criteria within the visual query definition, and display a second set of query criteria within a second visual query definition such that the visual query definition includes the first set of query criteria and the second set of query criteria.

58. One or more computer readable media as recited in claim 50, further comprising computer executable instructions that, when executed, direct the computing device to generate an audible indication corresponding to an update of the query result displayed within the visual query definition.